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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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2100 Pennsylvania Avenue, NW
Washington, DC 20037-3213

EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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12/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/995,814

Applicant(s)

DOI ET AL.

Examiner

Marie R. Yamnitzky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 6-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's amendment filed on October 31, 2007, which amends claim 1 and cancels claims 18-27, has been entered.

Claims 1 and 6-17 are pending.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. The rejections of claims 8-17 under 35 U.S.C. 112, 2nd paragraph, and 35 U.S.C. 103(a) are rendered moot by claim cancellation.

3. Claims 1 and 6-17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US 6,361,887 B1) for reasons of record in the Office action mailed September 13, 2007.

Claim 1 has been amended to use the phrase "consisting essentially of" instead of "comprising" with respect to the repeating units of the polymeric fluorescent substance. This language limits the repeating units of the polymeric fluorescent substance to those specified in the claim (i.e. one or more repeating units of formula (1) and one or more repeating units of formula (8)) and repeating units that do not materially affect the basic and novel characteristics of the claimed polymeric fluorescent substance. There is no evidence of record to demonstrate

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that the anthracene repeating units required for Shi's polymeric fluorescent substance would materially affect the basic and novel characteristics of the claimed polymeric fluorescent substance.

4. Claims 1 and 6-17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al. (EP 1 043 382 A2) for reasons of record in the Office action mailed September 13, 2007.

Claim 1 has been amended to use the phrase "consisting essentially of" instead of "comprising" with respect to the repeating units of the polymeric fluorescent substance. This amended claim language does not alter the examiner's position regarding the unpatentability of the claims over Noguchi et al. since copolymers consisting of, or comprising, repeating units of present formula (1) and repeating units of present formula (8), are within the scope of the prior art. In the case of copolymers comprising repeating units of present formula (1) and present formula (8), and one or more additional repeating units that are not of formula (1) or formula (8), there is no evidence of record to demonstrate that additional repeating units within Noguchi's disclosure would materially affect the basic and novel characteristics of the claimed polymeric fluorescent substance.

5. Applicant's arguments filed October 31, 2007 have been fully considered but they are not persuasive.

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Applicant's argument that the phrase "consisting essentially of" differentiates over Shi's polymers, which contain anthracene-9,10-diyl, is not persuasive. The phrase "consisting essentially of", in the context of the present claims, only excludes repeating units that would materially affect the basic and novel characteristics of the claimed polymeric fluorescent substance. Claims 1 and 8-17 place no specific limitation on the percentage of repeating units of formula (1) and formula (8) in the polymer. Claims 6 and 7 allow up to, and including, 50 mol% of the repeating units in the polymer to be repeating units other than those of formula (1) and formula (8). As noted above, there is no evidence of record to demonstrate that the anthracene repeating units required for Shi's polymeric fluorescent substance would materially affect the basic and novel characteristics of the claimed polymeric fluorescent substance. Given the disclosure of the application as originally filed, it is doubtful that anthracene-9,10-diyl repeating units would materially affect the basic and novel characteristics of the claimed invention. For example, anthracene-9,10-diyl repeating units are within the originally disclosed scope of formula (8), though not within the scope of formula (8) of the present claims. See the seventh formula on page 18 of the specification, which is disclosed as an example for Ar₂ of formula (8).

Applicant further argues that Example 1 and Comparative Example 1 of the present specification show that the present invention exhibits unexpectedly superior effects, referencing the relative value of fluorescent strength exhibited by the polymers of these examples. The examiner has considered the data set forth in the original disclosure. It is the examiner's position that the data do not demonstrate superior/unexpected results commensurate in scope

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with the claims, and do not demonstrate superior/unexpected results compared to the closest polymers disclosed by Shi et al.

The polymer of Example 1 of the present specification is not within the scope of the present claims. The present claims require a naphthylene or naphthylenevinylene repeating unit having at least one alkoxyphenyl group as a substituent on the naphthalene ring structure. The naphthylene repeating unit of the Example 1 polymer has two alkoxy groups as substituents on the naphthalene ring structure, and no alkoxyphenyl substituent.

The only exemplary polymer disclosed in the application that is within the scope of the polymer defined in the present claims is polymeric fluorescent substance 13, which is synthesized in Example 12. The fluorescent strength of this polymer is 1.05, which is greater than that of Comparative Example 1, but only half that of Example 1. The polymer synthesized in Example 12 also differs in repeating unit structure from the polymer of Comparative Example 1 in more ways than the presence or absence of an alkoxyphenyl substituent on the naphthalene ring structure, so does not demonstrate that the presence of an alkoxyphenyl substituent, per se, provides superior results. Also, the polymer synthesized in Example 12 consists of repeating units of formula (1) and formula (8) in a 50:50 molar ratio. In contrast, the most limited of the present claims allow for up to 50 mol% of repeating units outside the scope of formula (1) and formula (8), and allow for the formula (1) repeating unit (the unit having the required naphthalene ring structure) to account for as little as 0.1 mol% of the total of units of (1) and (8) in the case of claim 6, and as little as 5 mol % of the total of units of (1) and (8) in the case of claim 7. In other words, claim 6 encompasses polymers having as little as 0.05 mol% or as much

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as 95 mol% repeating units of formula (1) based on the total amount of all repeating units and claim 7, which is the most limited claim with respect to the composition of the polymer, encompasses polymers having as little as 2.5 mol% or as much as 95 mol% repeating units of formula (1) based on the total amount of all repeating units.

With respect to the rejection based on the disclosure of Noguchi et al., applicant argues that while Noguchi discloses naphthalene groups and fluorene groups, Noguchi does not disclose a copolymer comprising a naphthalene group and a fluorene group. This argument is not found persuasive. Noguchi's lack of a specific example of a copolymer comprising a naphthalene group and a fluorene group does not alter the fact that such copolymers are within the scope of Noguchi's disclosure.

6. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
November 28, 2007



MARIE YAMNITZKY
PRIMARY EXAMINER

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